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Leaders under pressure: time pressure and state core self-evaluations as antecedents of transformational leadership behaviour

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ABSTRACT

This study examines situational antecedents of transformational leadership by (a) studying the effect of time pressure on the emergence of transformational leadership behaviours, and (b) examining the mediating role of leaders' state core self-evaluations. Twice per day for 10 consecutive working days, 42 leaders reported on their state core self-evaluations, transformational leadership behaviours and the time pressure they experienced, yielding 531 observations. Using multilevel path analysis, we found that time pressure had an indirect effect on transformational leadership through leaders' state core self-evaluations. This mediated relationship was curvilinear; with time pressure having little to no effect on transformational leadership via state core self-evaluations when time pressure is below a leader's average level of time pressure. However, once this characteristic average level is exceeded, time pressure has a negative effect on transformational leadership via its negative relationship with state core self-evaluations, and this relationship becomes stronger for increasing levels of time pressure.

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In the past 20 years, no theory of leadership has received more scholarly attention than transformational leadership theory (Bass, 1985; Bass & Avolio, 1997). Not only has its overall validity been supported meta-analytically (Judge & Piccolo, 2004), primary studies have also shown its positive effects on employee work attitudes (e.g. Dvir, Eden, Avolio, & Shamir, 2002), individual and organization-level performance (e.g. Tsai, Chen, & Cheng, 2009; 2002; Walumbwa, Avolio, & Zhu, 2008), and employee health and well-being (e.g. Arnold, Turner, Barling, Kelloway, & McKee, 2007; Liu, Siu, & Shi, 2010). Hence, identifying personal and contextual factors that promote the emergence of transformational leadership behaviours is of paramount importance. However, despite the recognition of its contextualized nature (Nielsen & Cleal, 2011), relatively scant attention has been paid to conditions that foster the emergence of transformational leadership behaviours.

Transformational leadership has typically been conceptualized as a set of relatively stable behaviours that predominantly vary between individuals. Following this conceptualization, research has predominantly focused on revealing its dispositional antecedents (Barling, Christie, & Hopton, 2011; Bono & Judge, 2004; Judge & Bono, 2000; Resick, Whitman, Weingarden, & Hiller, 2009). Likewise, when studying contextual factors, the primary focus has been on how context moderates the effect of transformational leadership on followers or on leaders' effectiveness (e.g. Avolio, Zhu, Koh, & Bhatia, 2004; Howell & Hall-Merenda, 1999). Much less work has been done on how these contextual factors affect the emergence of leadership behaviours in the first place (Dóci & Hofmans, 2015; Nielsen & Cleal, 2011). In the present study, we address this

lacuna and extend the knowledge on contextual triggers of transformational leadership by examining time pressure as a contextual antecedent of within-person variation in transformational leadership behaviour.

Drawing on Conservation of Resources Theory (Hobfoll, 1989), we hypothesize that within-leader fluctuations in a leader's psychological resources mediate the within-leader relationship between time pressure (as perceived by the leader) and transformational leadership behaviour. Moreover, we do not only examine whether time pressure causes variation in transformational leadership through the activation/drainage of psychological resources, but we also study *how* this process happens. Previous studies on within-person variation in transformational leadership behaviour only considered linear associations, which may misrepresent true within-person relationships. Indeed, the reality of (working) life is often more complex than what can be described by linear relationships (Pierce & Aguinis, 2013). By depicting the nonlinear shape of this relationship, we offer a more realistic account on how changes in the work environment cause changes in leaders' behaviour.

This article contributes to theory and practice in different ways. On a theoretical level, transformational leadership has traditionally been studied with a nearly exclusive focus on between-leader differences rooted in leaders' personality traits. In our paper, we shift the focus towards the role of the organizational context, and in particular, time pressure, in the emergence of transformational behaviours *within* the leader. Regarding practice, while between-person studies on transformational leadership offer an inadequate basis for training

purposes, our study contributes significantly to transformational leadership development by demonstrating the contextual (i.e. time pressure) and psychological (i.e. core self-evaluations) mechanisms that stimulate or hinder the emergence of transformational leadership behaviour.

Conceptual model and theoretical concepts

Conservation of resources theory

According to Conservation of Resources Theory (Hobfoll, 1989), people's primary motivation is obtaining additional resources and protecting existing ones. Resources are anything that people value, whether they are "objects, personal characteristics, conditions or energies" (Hobfoll, 1989, p. 516), valued either for their own merits or because they help one acquire things s/he values or attain goals s/he has (Halbesleben, Neveu, Paustian-Underdahl, & Westman, 2014). Conservation of Resources Theory holds that people typically use one of two strategies, depending on whether they experience or expect resource loss or not. When people experience loss of (or threat to) resources, they react with simple behaviours aimed at preventing further loss of resources (e.g. avoidance behaviours). In other words, when confronted with resource loss or a threat to their resources, they engage in resource-protection behaviours. On the contrary, when the situation is not threatening, and when people feel rich in resources, they engage in more complex behaviours aimed at building further resources. In such situation, people invest resources to acquire more resources later on.

Time pressure and transformational leadership behaviour

A factor that is relevant to one's resources is time pressure, or the experience of time constraint that induces stress and creates a need to cope with the limited time (Ordóñez & Benson, 1997). Time pressure is a core quality of work in competitive organizations (Waller, Conte, Gibson, & Carpenter, 2001). We live in an era of "time famine", where people collectively perceive a lack of time and a continuous sense of crises resulting from it, with this experience affecting employees well-being and work outcomes (Perlow, 1997; Szollos, 2009). High time pressure – with peaks of extreme time pressure – is a common experience of most employees, causing stress, exhaustion, adverse health effects and even mortality (Perlow, 1997; Roxburgh, 2004). While working hours and overtime work are increasing, technology allows work to engulf private life, making time pressure a pervasive experience in contemporary, corporate culture (Szollos, 2009).

In terms of Conservation of Resources Theory, Dawson, O'Brien, and Beehr (2016) argued that there are multiple possible responses to time pressure. When time pressure is moderate to low, employees are likely to believe that the time pressure demands can be met, and in such circumstances they will engage in an investment of resources to meet those demands. When time pressure becomes too high, however, people will realize that they are no longer able to manage the situation, in which case they will switch to protecting their valued resources. This implies that the response to time pressure, in terms of resource investment versus resource

protection, depends on whether the individual believes the demands can be met (Dawson et al., 2016).

The idea that time pressure is a double-edged sword has been confirmed in empirical research. For example, Amabile, Conti, Coon, Lazenby, and Herron (1996) demonstrated that low to moderate levels of time pressure were positively related to creativity (i.e. resource investment), while the relation was negative for excessive levels of time pressure (i.e. resource protection). In a similar vein, Sheng, Wang, Hong, Zhu, and Zhang (2019) found an inverted U-shaped relationship between time pressure and work engagement, demonstrating that the positive effect of time pressure on engagement weakened when time pressure got higher, even becoming negative for very high levels of time pressure. Finally, research has shown that under conditions of high time pressure, people taking part in gambling games showed less risky choice behaviour, focusing more on potential losses than on potential gains (Zur & Breznitz, 1981). All of this suggests that under very high levels of time pressure people switch from a resource investment strategy to a resource protection strategy.

The switching from resource investment to resource protection is relevant to transformational leadership because transformational leadership (Bass, 1985; Bass & Avolio, 1997) consists of a set of pro-active and constructive leadership behaviours that are highly resource-intensive (Lin, Scott, & Matta, 2018). For example, transformational leadership behaviours include looking out for followers' needs, listening to them, supporting them, coaching them and caring for them (*individualized consideration*), challenging followers' assumptions and beliefs (*intellectual stimulation*), providing followers with meaning in their work and with challenges (*inspirational motivation*), and acting as a role model towards followers (*idealized influence*). Because such behaviours are highly complex, leaders have to invest resources to engage in transformational leadership behaviours. Provided that low to moderate levels of time pressure are associated with a resource investment strategy, whereas high levels of time pressure trigger a resource protection strategy, we expect time pressure to be curvilinearly related to transformational leadership behaviours.

Hypothesis 1: Time pressure relates in an inverted U-shaped way to transformational leadership behaviour.

State core-self evaluations and transformational leadership behaviour

A main premise of Conservation of Resources Theory (Hobfoll, 1989) is that, to engage in challenging, complex, and constructive behaviours, one must be rich in resources. To operationalize psychological resources in our study, we use core self-evaluations, as it represents an umbrella concept covering various, interrelated manifestations of psychological resources. Core self-evaluations (Judge, Erez, Bono, & Thoresen, 2003) are a person's beliefs about his/her worth, capabilities, and capacity to cope with life's challenges. It is a higher-order trait indicated by four, strongly inter-related, lower order traits: generalized self-efficacy, locus of control, self-esteem, and emotional stability. Its constituents, as well as core self-evaluations itself, have

often been conceptualized as psychological resources in previous studies (Halbesleben et al., 2014; Kammeyer-Mueller, Simon, & Judge, 2013; Vinokur & Schul, 2002; Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2007).

Although core-self evaluations have predominantly been studied as a stable trait, recent research has shown that it also fluctuates substantially across situations, even between very short time intervals such as a couple of hours, in response to varying situational factors like the level of task complexity (Debusscher, Hofmans, & De Fruyt, 2016a; Dóci & Hofmans, 2015; Nübold, Muck, & Maier, 2013). This variation is expressed by state core self-evaluations or “a state of personal agency characterized by positive evaluations of one’s current capability and worthiness (i.e. self-esteem), one’s current effectiveness (i.e. self-efficacy), one’s current feelings of being confident, stable, calm, and relaxed (i.e. low neuroticism) and one’s ability to control a given event (i.e. internal locus of control)” (Nübold et al., 2013, p. 3).

Conservation of Resources Theory (Hobfoll, 1989) postulates that, when rich in resources, people engage in constructive, resource building behaviours, as opposed to the avoidance behaviours they are prone to engage in in times of resource loss. This has been shown to be true for transformational leadership behaviours as well, with research showing that transformational leadership is positively associated with resource-rich states such as internal locus of control (Howell & Avolio, 1993), self-efficacy (Fitzgerald & Schutte, 2010), hope, optimism, resilience (Peterson, Walumbwa, Byron, & Myrowitz, 2009), emotional stability (Bono & Judge, 2004), and positive affect (Seo, Jin, & Shapiro, 2008). Hence, and in line with COR theory, we suggest that the higher the leader’s state core self-evaluations, the more likely s/he will engage in constructive, transformational leadership behaviours.

Hypothesis 2: State core self-evaluations relate positively to transformational leadership.

Time pressure and state core-self evaluations

Conservation of Resources Theory (Hobfoll, 1989) postulates that people are strongly motivated to prevent resource loss, and that the depletion of resources is caused by environmental circumstances or stressors. This loss of resources, in turn, results in emotional exhaustion (Halbesleben et al., 2014), which is a state of depleted psychological resources (state core self-evaluations).

As argued before, time pressure triggers one of two behavioural responses. It either leads to resource investment or resource protection, and the strategy that is chosen depends on whether people feel that they can accomplish the demand. Empirically, this ambivalence shows in mixed relations between so-called challenge stressors, such as time pressure, and psychological resources. Indeed, challenge stressors have been shown to cause stress, psychological strain and ill health (Boswell, Olson-Buchanan, & LePine, 2004; LePine, LePine, & Jackson, 2004; LePine, Podsakoff, & LePine, 2005; Podsakoff, LePine, & LePine, 2007; Prem, Kubicek, Diestel, & Korunka, 2016), but they also create the opportunity for personal growth and goal

achievement (Cavanaugh, Boswell, Roehling, & Boudreau, 2000), thereby relating positively to advantageous work attitudes and behaviours, such as job satisfaction, performance and organizational commitment (Boswell et al., 2004; Cavanaugh et al., 2000; LePine et al., 2004, 2005; Podsakoff et al., 2007). In other words, challenge stressors can both build and drain psychological resources. They increase psychological resources *as long as* the individual feels in control and believes that s/he can cope with the stressors, after which they start draining those very same resources (Karasek, 1979; Lazarus & Folkman, 1984).

In line with this reasoning, studies have shown that challenge stressors relate in a non-linear, inverted U-shaped way to motivation, performance, job satisfaction, and other (affective and behavioural) work outcomes (e.g. Baer & Oldham, 2006; De Jonge & Schaufeli, 1998; Janssen, 2001; Zivnuska, Kiewitz, Hochwarter, Perrewé, & Zellars, 2002). We therefore postulate that time pressure will show an inverted, U-shaped relationship with psychological resources as well. As time pressure increases, we expect that it would initially activate one’s psychological resources (i.e. resource investment). However, once it exceeds a certain level, it would start to deplete these resources (i.e. resource protection). Thus, we expect psychological resources to peak at an optimal, mid-level time pressure, and reach depths at very low and very high levels of pressure.

Hypothesis 3: Time pressure predicts state core self-evaluations in a curvilinear way.

The mediating role of state core-self evaluations in the relationship between time pressure and transformational leadership behaviour

As discussed above, a crucial factor in whether people engage in the investment of resources or rather in the protection thereof is whether they believe they can deal with the demands at hand. Core-self evaluations, being a person’s beliefs about his/her worth, capabilities, and capacity to cope with life’s challenges, capture those beliefs. Indeed, high self-efficacy, self-esteem, internal locus of control and high emotional stability all indicate that the person believes that (s)he can deal with the demands at hand. Because of this reason, we expect within-person variation in time pressure to trigger within-person variation in core-self evaluations. Moreover, because high core-self evaluations should be associated to resource investment, while low core-self evaluations should lead to resource protection, we expect within-person variation in core-self evaluations to trigger within-person variation in transformational leadership behaviour. In other words, we expect state core-self evaluations to mediate the relation between time pressure and transformational leadership behaviours. Moreover, because of its resource-building and resource-depleting role, we expect time pressure to have a curvilinear relationship with transformational leadership through its inverted U-shaped relation with leader’s state core self-evaluations.

Hypothesis 4: Leaders’ state core self-evaluations mediate the relationship between time pressure and transformational leadership.

Method

Sample

Our sample consisted of 42 leaders from various organizations in Belgium from the private sector, representing all hierarchical levels ranging from low-level to top-level leaders. We have found the participants through the personal network of a research associate and using snowball sampling. The average age of the participants was 46 years ($SD = 7.68$) and 36% of them were women. On average, they had been working for their organization for 12.1 years ($SD = 9.16$), had been in a leadership position for 9.63 years ($SD = 7.56$), and were responsible for 16.5 subordinates ($SD = 19.02$). Participants worked in the following sectors: environment and agriculture, information technology, transport and logistics and business consulting. Participation in the research was voluntary. The data were collected in 2014.

Procedure

We used an experience sampling method (ESM) design, in which leaders reported on their latest experiences that involved an interaction with a subordinate and this two times per day. The experience sampling methodology allowed us to capture within-leader fluctuations in states and behaviours, and their interactions with situational variables (Nielsen & Cleal, 2011). Data were collected by means of an online survey system. For ten consecutive working days, participants received one short questionnaire via email in the morning (10 am) and one in the afternoon (3 pm), whereby they reported on the time pressure they experienced, their state core self-evaluations, and the leadership behaviours they demonstrated in their last interaction right before filling in the questionnaire. The order of the scales and the items within each scale were randomized. We ensured that the participants filled in the questionnaire in a timely manner by de-activating the survey links after a couple of hours upon receiving them. By the end of the data collection, 531 responses were acquired out of 840 potential observations (42 participants \times 2 times/day \times 10 days), which means that 309 questionnaires were not responded to. This equals a response rate of 63.2%. Because our hypotheses are tested at the within-person level, the sample size of interest is not the number of leaders, but the number of unique observations ($N = 531$).

Measures

Transformational leadership

To assess leadership behaviour, we used the seven-item Global Transformational Leadership Scale of Carless, Wearing, and Mann (2000). This measure has high convergent validity with the Multifactor Leadership Questionnaire (Bass & Avolio, 1997), and has been adapted to measure momentary leadership behaviour in experience sampling and experimental designs (Dóci & Hofmans, 2015; Nielsen & Cleal, 2011). Because it contains only 7 items, it can be included in the ESM questionnaire without overwhelming the leaders. Participants indicated on a 7-point rating scale the extent to which their behaviour reflected the questionnaire's items, such as "to what degree were you

communicating a clear and positive vision?" or "to what degree were you clear about your values and practiced what you preached?" The factor structure of the Global Transformational Leadership Scale was tested using multilevel CFA. At the within-person level, we specified a one-factor model, while the model was saturated at the between-person level. This test revealed that this one-factor model fitted the data well ($\chi^2(14) = 17.84$; $p = .214$; $CFI = .992$; $TLI = .975$; $RMSEA = .023$; $SRMR_{within} = .027$). Within-person reliability was tested using Mplus version 7.3 (Muthén & Muthén, 1998–2011) using the multilevel confirmatory factor analysis approach described in Geldhof, Preacher, and Zyphur (2014). The within-leader omega reliability coefficient was .71.

State core self-evaluations

To assess leaders' state core self-evaluations, we used a short, four-item scale developed by Dóci and Hofmans (2015). In this measure, each item represents one of the lower order constituents of core self-evaluations. For example, self-esteem is measured by the item "To what degree did you feel good about yourself?" and emotional stability by the (reverse coded) item "To what degree did you experience negative emotions?" The leaders indicated their responses on a 7 point scale, ranging from "not at all" to "absolutely". To test the factorial structure of the state core self-evaluations measure, we performed a multilevel CFA in which a one-factor model was specified at the within-person level, while the model was saturated at the between-person level. This test revealed that, at the within-person level, a one-factor model fitted the data well ($\chi^2(2) = 4.64$; $p = .098$; $CFI = .991$; $TLI = .948$; $RMSEA = .052$; $SRMR_{within} = .023$). Omega reliability at the within-person level was .68.

Time pressure

We measured time pressure with the following item: "To what degree was the time pressure high?" Participants indicated their answer on a 7-point rating scale, ranging from "not at all" to "absolutely". Although one-item scales are not often used in traditional, cross-sectional research, they have a considerable history in ESM research. Moreover, for concrete constructs, research shows that one-item scales perform as well as multi-item scales (Bergkvist & Rossiter, 2009). As time pressure is a concrete and straightforward unidimensional construct, a single item should suffice (Debusscher, Hofmans, & De Fruyt, 2016b; Fisher & To, 2012; Hofmans, De Clercq, Kuppens, Verbeke, & Widiger, 2019).

Results

As a first step, we computed the means of all study variables on the raw, uncentered data as well as standard deviations and correlations on group-mean centred data (see Table A1). By group-mean centring the data (i.e. centring the variables around each leader's own average) all variation in the data due to between-leader differences (i.e. differences between leaders in the average scores) is removed from the data. This implies that the standard deviations and correlations in Table A1 pertain uniquely to the within-leader level (i.e. they pertain to deviations within the leader from his/her own average). These descriptive

analyses show that time pressure was negatively related to state core self-evaluations, while state core self-evaluations related in a positive way to transformational leadership behaviour. Time pressure and transformational leadership behaviour were unrelated.

As leaders provided ratings twice a day for 10 consecutive working days, our data have a nested structure with i measurements nested within j days, nested within k leaders. To test the percentage of variation in the study variables (i.e. transformational leadership, state core self-evaluations, and time pressure) situated at the measurement, day, and leader level, we tested a series of intercept-only models in which each study variable was predicted by a random intercept for each leader and a random intercept for each day. This analysis revealed that 48.98% of the variation in transformational leadership was accounted for by between-leader differences (i.e. differences between leaders in their average transformational leadership scores), 2.81% by between-day differences (i.e. differences in transformational leadership behaviour within leaders between different days), and 48.21% by between-moment differences (i.e. differences in transformational leadership behaviour between different moments within one day). For state core self-evaluations (CSE), 21.99% of the variation was due to between-leader differences, 7.26% to between-day differences, and 70.75% to between-moment differences. Finally, 39.53% of the variation in time pressure was due to between-leader differences, 0% to between-day differences, and 60.47% to between-moment differences. Partitioning the variance in the study variables across the three levels revealed that transformational leadership, state core self-evaluations, and time pressure all fluctuated substantially within the leader, thereby stressing the need for research on these within-person fluctuations. Moreover, since the amount of variation that is explained by the day-level was very small for all study variables,¹ we decided to not take into account this level in subsequent analyses (see Hox, 2010).

In the next step, we tested each hypothesized relationship separately. That is, we tested whether (1) transformational leadership could be predicted from time pressure and its squared effect (i.e. Hypothesis 1), (2) state CSE predicted transformational leadership behaviour (i.e. Hypothesis 2), and (3) time pressure and its squared effect related to state CSE (i.e. Hypothesis 3). This was done using three separate two-level regression analyses in the lme4 package in R (Bates, 2010). Because all hypotheses pertain to within-person relationships, in each model the predictors were group-mean centred. Moreover, to test whether the effects of the predictors varied across leaders, we tested each slope individually for randomness. For example, to test whether the effect of state CSE on transformational leadership behaviour varied across persons, we tested whether a model with a random slope for state CSE on the person-level fitted our data significantly better than a model without random slopes using a log-likelihood difference test. Statistically significant random slopes ($p < .05$) were included in the final model whereas non-significant random slopes were trimmed (Hox, 2010). Finally, because repeated measurements data often show autocorrelation (i.e. the dependent variable being correlated with itself on a previous point in

time), we tested whether state CSE on time $t + 1$ related to state CSE on time t . This analysis showed that state CSE on time $t + 1$ was unrelated to state CSE on time t ($\gamma = .07, p = .423$). The same test for transformational leadership behaviour revealed that transformational leadership behaviour on time $t + 1$ was unrelated to transformational leadership behaviour on time t ($\gamma = .08, p = .434$). Furthermore, there were no between-leader differences in the autoregressive effects (i.e. we found no evidence for random slopes). Because of this reason, we did not include the lagged criterion variables in further analyses.

When testing the relationship between time pressure and transformational leadership behaviour, we found that, although the linear effect of time pressure approached statistical significance ($\gamma = -.03, p = .068$), its squared effect was unrelated to transformational leadership behaviour ($\gamma = .00, p = .745$). Moreover, there were no between-leader differences in the linear and quadratic components (i.e. the slopes did not vary across leaders). Hence, Hypothesis 1 was rejected.

Regarding the relationship between state CSE and transformational leadership, we found a statistically significant positive effect ($\gamma = .28, p < .001$), with this effect differing across leaders (i.e. the slope is random). In other words, and in line with Hypothesis 2, the higher one's level of state CSE, the more transformational the leader behaves.

Finally, with respect to the relationship between time pressure and state CSE, and in line with Hypothesis 3, our results showed that the effect of time pressure ($\gamma = -.09, p = .022$) as well as the squared effect of time pressure ($\gamma = -.03, p = .025$) were significantly negatively related to state CSE, with the slope of the linear, but not that of the squared effect, varying across leaders. To ease its interpretation, we plotted this curvilinear relationship in Figure 1. As can be seen in Figure 1, especially high levels of time pressure have a detrimental effect on the individual's state CSE.

Altogether, our results showed that, although time pressure is not directly related to transformational leadership behaviour, it is related to state CSE in a curvilinear way, which is in turn linked to transformational leadership behaviour. As such, our findings provide initial support for our mediation hypothesis. However, to formally test the mediation hypothesis (i.e. Hypothesis 4), we tested the indirect mediation effect of time pressure on transformational leadership via state CSE using an approach specifically developed for testing nonlinear mediation (Hayes & Preacher, 2014). Because a quadratic predictor can be conceptualized as a moderation of the predictor by the predictor itself, the indirect effect – parallel to moderated mediation – has to be evaluated for different values of the predictor. Because of this reason, Hayes and Preacher (2014) refer to the indirect effect as the instantaneous indirect effect (i.e. the effect of the predictor on the outcome through the mediator at a specific value of the predictor). The instantaneous indirect effect was tested using two-level path modelling in Mplus version 7.3 (Muthén & Muthén, 1998–2011). A graphical representation of the instantaneous indirect effect, together with 95% confidence bounds is shown in Figure 2. As can be seen in this figure, time pressure has little to no effect on transformational leadership via state CSE if time pressure is lower than usual (i.e. if the level of time pressure is below

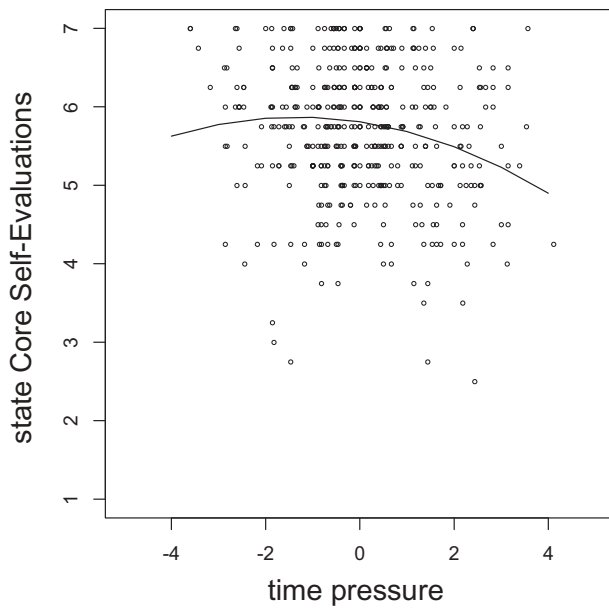


Figure 1. Curvilinear relationship between state core-self evaluations and time pressure. (Note: All variables are person-centred.).

zero, with zero being the person-specific average). However, once the level of time pressure exceeds this person-specific average, it has a negative effect on transformational leadership via its relationship with state CSE, and this relationship becomes stronger for increasing levels of time pressure. Again paralleling moderated mediation analysis, we can probe the instantaneous indirect effect, meaning that we test the strength of the relationship of time pressure via state CSE on transformational leadership behaviour for different values of time pressure. We probed the instantaneous indirect effect for the following values of time pressure: (1) three standard deviations below the mean, (2) two standard deviations below the mean, (3) one standard deviation below the mean, (4) the

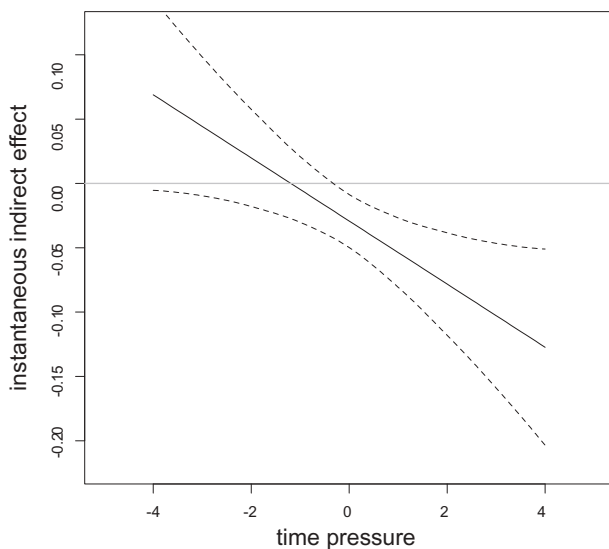


Figure 2. The instantaneous indirect effect (i.e. the effect of time pressure on transformational leadership via state core self-evaluations) as a function of time pressure. (Notes. All variables are person-centred. The dotted lines represent the upper and lower limits of a 95% confidence interval.).

average level of time pressure, (5) one standard deviation above the mean, (6) two standard deviations above the mean, and (7) three standard deviations above the mean. This test revealed that the instantaneous indirect effect through state CSE is positive and approaches conventional levels of significance when time pressure equals three standard deviations below the mean ($\gamma = .08, p = .052$), is nonsignificant when time pressure is two standard deviations ($\gamma = .04, p = .128$), and one standard deviation below the mean ($\gamma = .01, p = .703$), and is negative and significant when time pressure is average ($\gamma = -.03, p = .003$), one standard deviation above the mean ($\gamma = -.06, p < .001$), two standard deviations above the mean ($\gamma = -.06, p < .001$), and three standard deviations above the mean ($\gamma = -.14, p = .001$). This finding is in line with our earlier interpretation that time pressure has little to no effect on transformational leadership via state CSE if time pressure is lower than usual. However, once the level of time pressure exceeds the person-specific average, it has a negative effect on transformational leadership via its relationship with state CSE, and this relationship becomes stronger for increasing levels of time pressure.

Discussion

Although our results show that time pressure does not directly relate to transformational leadership, we did find support for an indirect effect on transformational leadership through leaders' state core self-evaluations. This mediated relationship followed an inversed U-shaped pattern, revealing that fluctuations in time pressure relate to fluctuations in leaders' state core self-evaluations in a nonlinear way and that these fluctuations explain within-person variation in transformational leadership behaviour. More specifically, we showed that time pressure has little to no effect on transformational leadership via state CSE if time pressure is lower than usual. However, once the level of time pressure exceeds this person-specific average, it has a negative effect on transformational leadership via its relationship with state CSE, and this relationship becomes stronger for increasing levels of time pressure.

Theoretical contributions

By showing that core self-evaluations mediate the relationship between time pressure and transformational leadership behaviour, our findings confirm Conservation of Resources theory's notion that people engage in an investment of resources when they feel in control, while they switch to protecting their valued resources when they feel this is no longer the case (Dawson et al., 2016). Indeed, when leaders are confronted with a level of time pressure that is below their typical level, their state core self-evaluations tend to be high, and the associated resource investment approach allows them to behave in a resourceful, transformational way. When time pressure exceeds their typical level, their level of state core self-evaluations drops, and the associated resource-protection approach diminishes the demonstration of transformational leadership behaviours. By showing this mediation effect through state core self-evaluations, our findings contribute to Conservation of Resources theory by empirically demonstrating a core

mechanism underlying its competing tenants (i.e. resource investment versus resource protection as a function of feeling in control).

Despite finding general support for our mediation framework, we failed to find evidence for a direct relation between time pressure and transformational leadership behaviour. This might be due to the fact that statistical power for specific indirect effects is often higher than statistical power for the direct effect (Kenny & Judd, 2014). Another reason might be that the mediation through one's core self-evaluations might be accompanied by a competing mediation pathway that is opposite in sign and therefore nullifies the total effect. For example, time pressure might not only affect transformational leadership behaviour through its effect on core self-evaluations, but also because it urges leaders to delegate the work to their subordinates, thereby stimulating transformational leadership behaviour. Because both mediation mechanisms are (partly) opposite in sign, they might cancel each other out, giving rise to a nonsignificant direct relation. Of course, because we have not measured those alternative mediation mechanisms, this explanation remains to be tested by future research.

A major strength of our study is that we conceptualized and operationalized our contextual (i.e. time pressure), psychological (i.e. core self-evaluations) and behavioural (i.e. transformational leadership) variables as being dynamic in nature. This allowed us to show how situational factors and psychological resources covary with transformational leadership behaviour, thereby offering a comprehensive understanding of how psychological resources – or the lack thereof – affect the behaviour of leaders on a situational basis. This event-based approach is an important addition to the leadership literature because it complements existing research on transformational leadership, where the focus traditionally has been on stable dispositions and situations as antecedents of transformational leadership.

Important in this regard is that our results showed that no less than half of the variance in transformational leadership behaviour is located within leaders. As variation in transformational leadership has been usually studied on the between-person level, this finding in and by itself is an important contribution to the leadership literature. Even though Conservation of Resources theory logically expects intrapersonal variation in transformational leadership behaviour to occur (Hobfoll, 1989; Hobfoll, Halbesleben, Neveu, & Westman, 2018), empirical evidence at the within-person level remains largely absent from the literature (Byrne et al., 2014). With this study, we successfully address this gap in the literature by demonstrating that fluctuations in leaders' psychological resources (i.e. state CSE) relate to behavioural change on the within-person level.

Note that our aim is not to contest the relevance of studying individual differences in people's general level of psychological resources (i.e. core self-evaluations) and in their leadership behaviour. Instead, we want to emphasize that solely focusing on these individual differences offers a one-sided account of workplace phenomena, and that taking within-leader differences also into account contributes to a more comprehensive understanding of psychological resources and transformational leadership. Future research endeavours may therefore explore

the interplay between situational and dispositional variables in affecting behavioural outcomes of leaders. For example, it may take higher time pressure to deplete the resources of leaders with high trait core self-evaluations than the resources of leaders with low trait core self-evaluations (*see differential exposure hypothesis*, Kammeyer-Mueller, Judge, & Scott, 2009), because individuals with a bigger pool of resources are less vulnerable to stressors (Hobfoll, 1989; Hofmans, Debusscher, Dóci, Spanouli, & De Fruyt, 2015; Van den Broeck, De Cuyper, De Witte, & Vansteenkiste, 2010).

Limitations

While we argued that psychological resources facilitate transformational behaviours, our non-experimental design did not allow us to empirically show the causal nature of our findings.² In line with Conservation of Resources Theory (Hobfoll, 1989), high levels of psychological resources are assumed to trigger resource-building behaviours, which in turn generate additional resources. This implies that success experiences that follow transformational behaviours (Tsai et al., 2009; Walumbwa et al., 2008) may enhance leaders' self-esteem, self-efficacy, and control, and therefore engaging in transformational behaviours may activate psychological resources. Defensive, avoidant, resource-protecting behaviours (Hobfoll, 1989; Kammeyer-Mueller et al., 2009), on the other hand, might decrease leaders' sense of worth, efficacy, control and cheer, thereby exhausting their psychological resources. Despite this strong theoretical rationale, follow-up research that is capable of exploring the causal nature of this relationship more closely would therefore be very valuable.

A second shortcoming is that leaders rated their own leadership behaviour, which may generate self-serving bias (Funder & Colvin, 1997). Even though ideally subordinates would rate leaders' behaviours, self-serving bias is less problematic in within-person studies because these studies focus on within-person fluctuations. To not confound those within-person fluctuations with between-person fluctuations, all between-person differences – including between-leader differences in self-serving bias – are removed from the data. Thus, while self-enhancement is likely to distort the findings on the between-persons level, it is unlikely to distort the findings on the within person-level since the variation is always relative to the leader's own individual baseline. Third, the leaders in our sample were recruited using a mixture of convenience and snowball sampling. Replication of our findings with a more representative sample of leaders might be warranted. The possibility that leaders may have skipped filling in the questionnaire when time pressure was very high, constitutes the fourth limitation of our study. We counteracted this limitation by allowing leaders to complete the questionnaires within a few hours upon reception. In spite of this measure, the observation moments may not represent the whole range of time pressure that leaders are subject to in their daily work.

A final set of drawbacks results from the specific nature of our experience sampling design. Because of the predetermined data collection moments, we may have missed critical situations that were especially relevant in the leaders' work life. However, by sampling a relatively large set of moments, we

tried to counter this limitation. A second disadvantage of the experience sampling design is that it requires brief questionnaires. Because of this constraint, we were not able to include potential confounding variables (e.g. task complexity, leaders' competences and job resources) that may have distorted the relationship between job demands, psychological resources and behaviour. Therefore, an experimental research design would nicely complement our current study as this design allows researchers to control for such confounding factors.

Practical implications

Our finding that half of the variation in transformational leadership behaviour is located within leaders indicates that organizations do not necessarily need to invest in recruiting new, outstanding leaders if they want to promote transformational leadership. Instead, they may invest in measures that help to bring out the transformational leadership potential of their current workforce, which may be a more cost effective strategy. Intervention programmes that enhance leaders' psychological resources (Luthans, Avey, Avolio, & Peterson, 2010; Rodin & Langer, 1977; Schunk & Ertmer, 1999; Ventegodt et al., 2007) may be helpful to enable transformational behaviours. Cognitive-behavioural methods (Beck, 1991) have been shown to be effective (Proudfoot, Corr, Guest, & Dunn, 2009; Ruwaard, Lange, Bouwman, Broeksteeg, & Schrieken, 2007) in training leaders to re-appraise situations and re-interpret difficulties as challenges (Hobfoll, 1989). However, this approach should not be romanticized (Hobfoll, 1989), as stressful conditions can only be reappraised to a certain extent, and leaders' cognitive efforts cannot replace organizational policies that limit extensive stress and demands on its employees. If organizations want to structurally promote transformational behaviours, they may organize work in ways that minimizes periods with inordinately high (or low) time pressure.

Notes

1. This suggests that within-person fluctuations in those constructs are episodic in nature in the sense that they depend on the specific work episode, rather than on the specific day on which those episodes happened. Note that this does not imply that the level of those constructs is stable across days. It rather implies that between-day differences in the constructs can be accounted for by what happens at the episodic level within those days. In other words, it suggests that there is little systematic variation at the between-day level that can be attributed to between-day effects without referring to the episodes within that day.
2. We did test time-lagged effects, but failed to find significant relationships. This might be due to two reasons. First, as all study variables were measured twice per day, at 10 am and at 3 pm in our study, the 5-hour time lag between the measurement points might have been too long to capture time-lagged relationships. Second, because testing time-lagged effects requires the presence of both within-day observations (i.e. lagged effects cannot span multiple days), the number of observations for this analysis dropped to 187 for time pressure, 168 for state CSE, and 126 for transformational leadership behaviour due to missing data. This implies that statistical power for testing the time-lagged effects is substantially lower than power for testing the concurrent effects.

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Appendix

Table A1. Means, standard deviations, and correlations for all study variables.

	<i>M</i>	<i>SD</i>	1	2
1. Time pressure	3.78	1.44	-	
2. State core self-evaluations	5.71	.72	-.17**	-
3. Transformational leadership	5.78	.49	-.09	.42**

The means are computed using the raw (uncentered) data. Standard deviations and correlations are computed using group-mean (or person-) centred data.